

## How does Lorcaserin/Belviq work?

### **1.Lorcaserin mechanism of action**

Lorcaserin works by controlling appetite — specifically by activating brain receptors for serotonin, a neurotransmitter that triggers feelings of satiety and satisfaction. Intake of food is controlled by satiety center, located in ventromedial nucleus of hypothalamus and hunger center present in lateral hypothalamus. Various inputs from higher centers and gastrointestinal tracts converge in arcuate nucleus, where two types of neurons controlling food intake is present. Firstly, food intake stimulatory group producing agouti-related protein and neuropeptide Y; and secondly, food intake inhibitory group containing cocaine and amphetamine regulated transcript (CART) and pro-opiomelanocortin (POMC) neurons. POMC contains 5-HT<sub>2C</sub> receptors, which when activated releases alpha-melanocyte-stimulating hormone (alfa-MSH). Both inhibitory and stimulatory neurons further projects paraventricular nucleus in the hypothalamus. Paraventricular nucleus contains melanocyte 4 receptors (MC4R) that inhibits appetite. In therapeutic doses lorcaserin acts as a selective 5-HT<sub>2C</sub> agonist on POMC neurons, which in turn causes release of alfa MSH. Further alfa MSH acts on

MC4R in paraventricular nucleus in the hypothalamus, leading to decrease in appetite. In supratherapeutic doses, lorcaserin also acts on 5-HT 2B and 5-HT 2A receptors.

## **2. Lorcaserin Pharmacokinetics**

Lorcaserin is rapidly absorbed in gastrointestinal tract and is delayed with fatty meals. Peak plasma concentration is achieved in 1.5-2 h, with half-life of 11h. It is evenly distributed in cerebrospinal fluid and central nervous system. Lorcaserin is 70% plasma protein bound and metabolized in liver, with major metabolite being lorcaserin sulfamate, and its excretion is mainly through urine (92%) and minor excretion through feces.

BELVIQ is designed to help you feel full after you've eaten less food. Lorcaserin activates serotonin receptors in your brain. The serotonin receptors regulate hunger. When they signal your body to feel full, you may be able to eat less and lose weight.

## **Reference**

1. Spreitzer H (13 September 2010). "Lorcaserin". Österreichische Apothekerzeitung (in German). 64 (19): 1083.
2. Millan MJ (2005). "Serotonin 5-HT<sub>2C</sub> receptors as a target for the

treatment of depressive and anxious states: focus on novel therapeutic strategies". *Therapie*. 60 (5): 441–60. doi:10.2515/therapie:2005065. PMID 16433010. Archived from the original on 28 August 2015.

3. Smith BM, Smith JM, Tsai JH, Schultz JA, Gilson CA, Estrada SA, et al. (March 2005). "Discovery and SAR of new benzazepines as potent and selective 5-HT(2C) receptor agonists for the treatment of obesity". *Bioorganic & Medicinal Chemistry Letters*. 15 (5): 1467–70. doi:10.1016/j.bmcl.2004.12.080. PMID 15713408.

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